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Research Article

Is Being Gay in the UK Seriously Bad for Your Health? A Review of Evidence

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Abstract

Evidence shows that, globally, people who identify as gay have higher health risks and poorer health outcomes than heterosexual people. In order to evaluate the health risks associated with being a gay man in the UK and the impact sexual identity has upon health, an evidence review was conducted. Embase, Medline, PsychINFO, Cinahl and the Web of Science were searched for relevant studies in the English-language from 2000-2016. Further searches were also made from Mesmac, The Higgins Terrence Trust, The LGBT Foundation and Stonewall websites. The review considered all studies that involved gay men of all ages, races and social classes - with or without disabilities - in the UK and the health risks associated with being gay. The studies retrieved were evaluated for quality, leaving a total of 18 studies to be included in the review. Data were extracted and synthesized using a narrative approach. The review found that mental health problems, suicide and self-harm were higher than average amongst gay men in the UK, and that these issues were associated with the challenges and stress experienced by men as a direct result of their sexual identity. The findings of this review also revealed two other significant risk factors for gay men's health: the use of illicit drugs before or during sex (chemsex) and use of the internet - which either facilitated high risk sexual behavior and/or increased the risk of exposing gay men to homophobic discrimination and/or hate crimes. The implications of the findings for future research and health promotion practice are discussed.

Keywords

Evidence Review; Gay Men; Health Risk; Sexual Identity

Introduction

Although significant progress has been made to protect and foster the welfare rights and health of the Lesbian, Gay or Bisexual (LGB) community in the UK [1], statistics indicate that people who identify as LGB still face many challenges [2]. For example, the Gay British Survey (2013) highlighted that from 2009-2012 1/6 LGB people experienced a homophobic hate crime; 2/3 of victims did not report the crimes and for those who did, less than 1/10 resulted in a conviction [3]. Guasp et al., [4] reveal that gay men in particular are further at risk from the practice of 'chemsex' (which involves consuming excessive amounts of alcohol or illicit drugs prior to, or during sex); bare-backing (having penetrative sex without using condoms), and had a two-fold likelihood of considering or attempting suicide as compared with heterosexual men.

These findings are not new, but add to existing research from the U.S which found the rates of suicide attempts in young LGB people to be higher than in their heterosexual counterparts [5]. A study involving 350 LGB young people from Canada, the U.S and New Zealand found that more than 4/10 participants had considered suicide, and 1/3 had attempted suicide [6]. From those who had attempted suicide, 65% were male and 45% were female and the reason given for attempted suicide was sexual orientation. The Vietnam Era Twin Registry Study which explored the differences in suicidality between twins, found that gay and bisexual men were six times more likely to have attempted suicide than heterosexual twins [7]. It is posited that homophobia and internalized homophobia could have a significant contribution to poor mental and health outcomes among LGB people [8].

Another significant health concern for gay men is Unprotected Anal Intercourse (UAI) or 'bare-backing' - especially among

HIV positive gay men - and there are several websites dedicated specifically to 'bare backing' practices [9]. A U.S study reported that 84% of participants (112) were HIV positive gay men and had practiced UAI in the previous three months - with 43% engaging in UAI with a partner of unknown HIV status [9]. The use of the internet to facilitate casual sexual liaisons in order to engage in UAI is indicative of a wider potential risk for the transmission of HIV and other sexually transmitted diseases. This review aims to shed more light in this area and to make a contribution to existing knowledge about the health risks associated with being a gay man in the UK today.

An initial literature search suggested that, apart from research about sexual behavior with regards to HIV, little has been done to understand the wider health risks that exist for gay men in the UK. Therefore, the studies considered for this review had to address three key questions: firstly, is there a relationship between sexual identity and health? Secondly, if a relationship is found to exist between sexuality and health, can the risks and impacts be clearly identified - and thirdly, over what time frame do the risks and impacts occur?

Methods

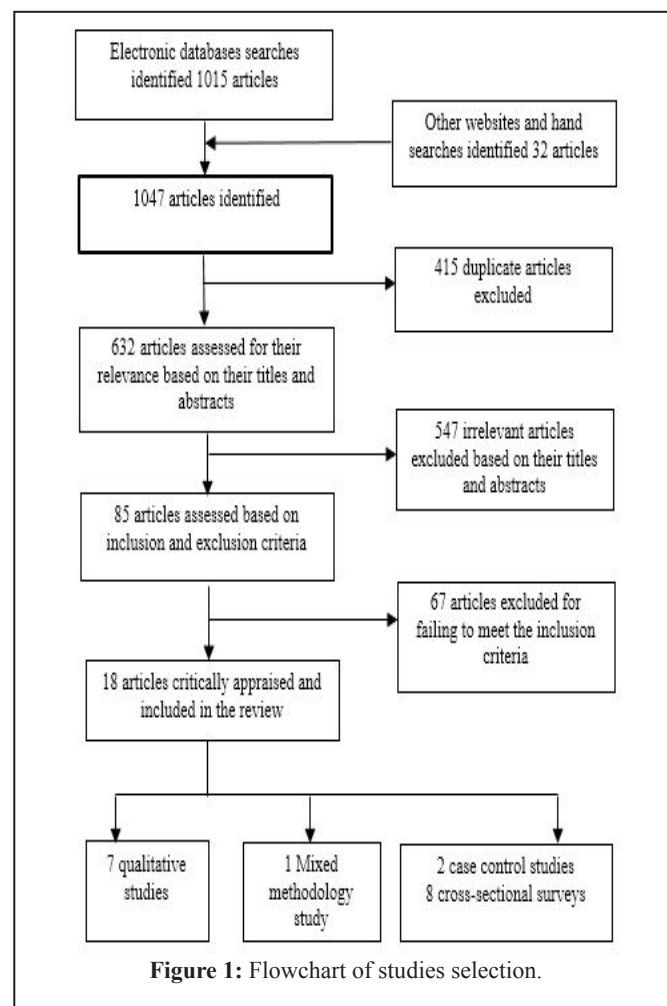
Search strategy

A review of evidence was carried out in July 2016 searching for scripts indexed in Embase, Medline, PsychINFO, PubMed, Cinahl, Web of Science, the Cochrane Library as well as in Mesmac, The Terrence Higgins Trust, The LGBT Foundation and Stonewall websites. Key words and their synonyms were used to perform an extensive search to look for additional studies. The search words used in this review included 'gay men', 'homosexual men', 'queers', 'risk behavior', 'risk factor' 'risk taking', 'chemsex', 'illicit drug', 'illegal drug', 'bareback*', 'unprotected anal sex', 'buggery', 'identit*'. For a full list of search terms see Appendix 1. The search terms were combined using Boolean operators (OR, AND, NOT), for example 'gay men' OR 'homosexual' AND 'identity' AND 'risk' AND 'UK'. The bibliographies and reference lists of all articles identified were also used to perform additional searches for relevant papers. The full text of articles meeting the inclusion criteria were downloaded for data synthesis. The flow chart (Figure 1) summarizes this process.

Inclusion and exclusion criteria

The review was limited to papers published in English between 2000-2016, with full text. This timeframe is thought to be significant as the year 2000 saw the offences of buggery and gross indecency removed from the UK statute books [10]. Post 2000 therefore might arguably be interpreted as a more tolerant period of UK history in which gay men could

enjoy the same freedoms as their straight counterparts, and thus a time in which one might expect some improvements regarding the health risks historically associated with being a gay man. Expert opinions, anecdotal information, editorials, commentaries and all studies that did not fulfill the definition of being a gay man - such as men who have sex with men (MSM) or people with other sexual orientations - were excluded.



To attain specificity, the PECOS framework (NICE, 2014) was adopted as outlined below [11].

Population: this review considered all studies that involved gay men of all ages, races and social classes with or without disabilities in the UK (including the Northern Ireland).

Exposures: all studies which assessed risks related to gay sexual identity were considered, for example excessive alcohol intake, illicit drug use, suicide, unsafe sex and harm to self or others.

Control: where applicable, the review considered studies that involved heterosexual men as the control group.

Outcomes: the review considered the studies that indicated the effects of risk due to gay identity on gay men.

Study design: both qualitative and quantitative studies were considered in this review. All papers which lacked full text were excluded from the review. Anecdotal information, expert opinions, editorials and commentaries were also excluded.

Quality assessment, data extraction and synthesis

Initial screening of identified articles was done by reading the

titles and abstracts. All articles not fulfilling the inclusion criteria were discarded. Full texts of the articles that progressed through this stage were then retrieved and screened against the inclusion and exclusion criteria as highlighted earlier. The remaining papers were critically appraised to determine their quality using the CASP critical appraisal checklists and NICE ratings [11]. Data from the included studies were then extracted using the data extraction form and synthesized using a narrative synthesis. Meta-analysis was not performed in this review as there was considerable heterogeneity in the quantitative studies reviewed.

Study No.	Study Ref	Study design	Study location	Study population	Age (years)	Other characteristics	Sample size	Sampling method
1.	Bacchus et al. [12]	Cross-sectional	London	Men attended LGBT and general clinics	≥18		532	Random and convenience
2.	Bolding et al. [13]	Cross-sectional	London	Gay men gym users HIV+ gay men attended NHS clinics	≥18	HIV+ (388); HIV negative (266), Gym users (1592)	2246	Convenience
3.	Bourne et al. [14]	Qualitative	South London	Gay men with drug use history	21-53	HIV+(13); HIV negative (17)	36	Convenience
4.	Bourne et al. [15]	Qualitative	South London	Gay men with drug use history	21-53	HIV+ (13), HIV negative (17), varied drug use	30	Convenience
5.	Davis [16]	Qualitative	London	Gay men with sero-discordant sexual relationship experience	20-50	All white Europeans	16	Purposive
6.	Davis et al. [17]	Qualitative	London	Gay men attended HIV clinics, gay-friendly gyms and e-dating sites	20-66	HIV+ (38), HIV negative (73), Untested (17)	128	Convenience and purposive
7.	Davis et al. [18]	Qualitative	Central London	Gay men attended clinics, internet chatrooms/ profiles, gyms	21-66	HIV+ (32), HIV negative (59), Untested (13);	128	Purposive
8.	Elam et al. [19]	Qualitative	London, Brighton, Manchester	Gay men attended sexual-health clinics	20-66	Recent HIV sero-converters (26), Non-converters (22)	48	Purposive and Quota
9.	Elford et al. [20]	Cross-sectional	Central London	Gay men used gyms		HIV+ (121), HIV negative (465), Never tested (157)	743	Convenience
10.	Elford et al. [21]	Cross-sectional	East London	HIV+ gay and straight men who received treatment at six NHS clinics	≥18	All HIV+	2680	Convenience
11.	Gilbart et al. [22]	Mixed (Case control and qualitative)	Central London	Sexually-active gay men attended STD clinic	20-35	Cases [HIV+] (20), Control [HIV negative] (22)	42	Convenience
12.	King and Nazareth [23]	Controlled cross-sectional	London	Heterosexual, gay, bisexual men and women clients of 13 general practices	18-75	Gay men (38), heterosexual men (373)	1509	Convenience

13.	King et al. [24]	Controlled cross-sectional	England, Wales	Gay men, lesbians, heterosexual men and women	≥16	Gay men (656), heterosexual men (505)	2179	Snowball
14.	McAndrew and Warne [25]	Qualitative	UK	Gay men with suicidal experience in their adolescence	35-41		4	Purposive
15.	McAndrew and Warne [26]	Qualitative	London, Brighton, Manchester	Gay men with suicidal experience in their adolescence	35-41		4	Purposive
16.	Macdonald et al. [27]	Qualitative	UK	Recently HIV+ diagnosed gay men	≥16	Cases (75), Controls (157)	232	Convenience
17.	Nardone et al. [28]	Cross-sectional	London, Edinburgh	Gay men socialized in gay-social venues/bars	≥16		2397	Purposive convenience
18.	Wheater et al. [29]	Case Control	Greater Manchester	Gay men attended at GUM department and voluntary sectors		No infections (49), syphilis alone (16), syphilis and HIV (7), HIV alone (13)	85	Purposive

Table 1: Studies' characteristics.

Results

The literature search identified a total of 1047 articles, 415 of these were duplicates and thus discarded. The remaining 632 articles were assessed for their relevance based on their titles and abstracts. 547 of these articles were irrelevant and excluded. The remaining 85 articles were assessed using the set inclusion and exclusion criteria and from this process 18 studies were found to be relevant. Of the 18 articles, 9 were qualitative studies, 1 a mixed methodology study and 8 were quantitative studies (Figure 1).

Study designs and locations

Most of the quantitative studies were cross-sectional (1,2,9,10,12,13,17), one case control study (18) and one mixed method study. Most studies (14/18) were conducted in London and recruited participants from diverse settings. A full breakdown of information is provided in table 1.

Characteristics of study populations and participants, sample size, sampling method and recruitment

Most studies (12/18) did not explicitly describe their study populations (Table 1). Studies had participants with varied ages for example, eight studies (3,4,5,6,7,8,15,16) recruited participants aged 20-60 whereas other studies did not clearly indicate the participants' age range (1,2,5,9,10,13,14,18). Nearly half of all studies used only convenience samples (2,3,4,9,10,11,12,14); two studies (6,17) combined convenience and purposive sampling. The sample size for the qualitative studies ranged from 4 (15,16) to 128 (6,7) participants, whereas, the sample size of quantitative studies varied markedly from 42 (11) to 2680 (10).

Data collection methods and methodological quality

The 18 studies selected employed different methods of data collection (Table 2). All qualitative studies used interviews to collect data. All case control and cross-sectional studies used questionnaires for data collection and two studies (7,10) used mixed methods. NICE ratings were used to assess the quality of each individual study and were rated accordingly [11]. The NICE rating criteria were: (++) - meaning all or most of the checklist criteria had been fulfilled, (+) meant some of the checklist criteria had been fulfilled, and (-) was assigned where few or no checklist criteria had been fulfilled. Using these quality ratings, most of the studies included in this review were found to be of a high methodological quality with a few being deemed as moderate quality (1,2,9,10,13).

Findings from quantitative studies

Bacchus et al., [12] found that being threatened (aOR 2.5, 95% CI 2.0 - 3.1) and controlled (aOR 2.7, 95% CI 1.6 - 4.7) by a partner were associated with increased odds of anxiety. Physical abuse (aOR 2.3, 95% CI 1.4 - 3.8), threats (aOR 2.2, 95% CI 1.5 - 3.2), forced sex (aOR 2.5, 95% CI 1.3 - 4.9) and negative behavior by a partner in the previous year (aOR 1.7, 95% CI 1.2 - 2.5) were associated with increased odds of using illicit drugs in the previous year.

Bolding et al., [13] found that crystal methamphetamine use varied in the previous year among participants: in HIV treatment clinics (12.6%); in HIV testing/sexual health clinics (8.3%) and gyms (19.5%). More than 80% of gay men in all three settings used illicit drugs. Crystal methamphetamine use predicted the odds of engaging in high-risk sexual behaviors (OR 4.9, 95% CI 2.34 - 10.26, $p < 0.001$) among HIV positive gay men.

Study No.	Study Ref	Data collection method	Quality
1.	Bacchus et al. [12]	Questionnaire	Moderate
2.	Bolding et al. [13]	Questionnaire	Moderate
3.	Bourne et al. [14]	Interviews	High
4.	Bourne et al. [15]	Interviews	High
5.	Davis [16]	Interviews	High
6.	Davis et al. [17]	Interviews (online, face-to-face)	High
7.	Davis et al. [18]	Interviews	High
8.	Elam et al. [19]	Interviews	High
9.	Elford et al. [20]	Questionnaire	Moderate
10.	Elford et al. [21]	Questionnaire	Moderate
11.	Gilbart et al. (2000) [22]	Questionnaire and interviews	High
12.	King and Nazareth (2006) [23]	Questionnaire	High
13.	King et al. (2003) [24]	Questionnaire	Moderate
14.	McAndrew and Warne [25]	Free Association Narrative thematic interviews	High
15.	McAndrew and Warne [26]	Free Association Narrative thematic interviews	High
16.	Macdonald et al. [27]	Computer-assisted Self-Interview	High
17.	Nardone et al. [28]	Questionnaire	High
18.	Wheater et al. [29]	Questionnaire	High

Table 2: Data collection methods and methodological quality.

Elford et al., [21] surveyed 481 and 66 participants from the clinic and internet respectively. 59/481 (12.3%) of participants from the clinic deliberately looked for Unprotected Anal Intercourse (UAI), 34/481 (7.1%) wanted only a HIV positive partner and 25/481 (5.2%) looked for a partner with a discordant/unknown HIV status. Out of 66 online participants, 32 (48.5%) reported looking for UAI intentionally, 15 (22.7%) looked for UAI only with another HIV positive man, 3 (4.5%) looked for UAI with an HIV negative man, and 14 (21.2%) with a man of unknown HIV status.

In a case-control study by Gilbart et al., [22], cases (gay men who are HIV positive) and controls (gay men who are HIV negative) were similar in the number of sexual partners and unawareness of their partners' HIV status. Cases were more likely than controls to report receptive UAI with a partner of unknown or HIV positive status (OR 5.5, 95% CI 1.15 - 29.50). Between the two HIV tests, half of the cases and a quarter of the controls (27%) contracted STDs. Drug use, alcohol and emotional challenges were cited by cases as the main contributors for their HIV positive status, while high-risk behavior avoidance and commitment to safe sex were cited by the controls for their HIV negative status.

King et al., [24] found that gay men had higher levels of psychological distress (RR1.30, 95% CI 1.11-1.52). Gay men had more likelihood of scoring above the threshold on the Clinical Interview Schedule than heterosexual men, implying higher levels of psychological distress (RR1.24, 95% CI 1.07

- 1.43). Gay men were more likely to deliberately harm themselves (166/310 (54%), $p < 0.01$) and use recreational drugs (327/626 (52%) $p < 0.001$) than heterosexuals (66/166 (41%) $p > 0.05$) and 223/498 (45%) $p > 0.05$) in the previous month.

King and Nazareth [23] reported higher levels of poor mental health among gay men (OR 2.48, CI1.05 - 5.90) and sexual abuse in childhood than heterosexual men (OR 4.86, 95% CI 2.28 - 10.34). Receptive UAI with partners not believed to be HIV negative (aOR 4.1, 95% CI 1.8 - 9.3) was found to be a risk factor.

MacDonald et al., [27] found that concurrent drug use, multiple sexual partners and receiving ejaculate increased HIV risk. Cases were defined as gay men who sero-converted recently and controls were defined as gay men who remained HIV negative in the previous two years. Both cases and controls had similar socio-demographics, for instance when they first became sexually active, the number of HIV tests taken during their lifetime, the reasons given for HIV testing and the interval between each HIV test. Insertive UAI with multiple partners (aOR 2.7, 95% CI 1.3 - 5.5), receptive UAI with partners not believed to be HIV positive (aOR 4.1, 95% CI, 1.8 - 9.3), and nitrite inhalant use (aOR 2.4, CI 1.1 - 5.2) were all found to increase the risk of acquiring HIV.

Findings from qualitative studies

Using a thematic approach, the findings from the 7 qualitative studies reviewed highlighted the risks for gay men as:

substance use, mental health issues and the role the internet played in increasing risks among gay men.

Substance use: Studies showed a high level of substance use among gay men with a varying degree of illicit drug use combined with sex - chemsex (3,4). Poly drug use was common, whereby mephedrone and crystal methamphetamine were often combined with other drugs such as GHB (gamma-hydroxybutyrate) and GBL (gamma-butyrolactone) (3,4). Gay men often used drugs, especially crystal methamphetamine, for encounters with casual partners which led to intense sexual arousal and involvement in high risk sexual practices such as a group sex (4). Due to its relaxing effect, nitrate inhalant (poppers) were used by receptive partners to calm the anxiety associated with exposure to HIV, to facilitate penetration and enhance enjoyment (8). For some participants, the use of poppers facilitated initial UAI and enhanced the subsequent sexual encounter (8). A few drug users reported being out of control with their drug use and engaging in a chemsex 'marathon', participating in chemsex house parties and moving to multiple gay venues to engage in unprotected sex with multiple sexual partners for a prolonged period of time (4).

Acute drug overdose, especially with GHB and GBL or poly drug use, was reported (3,4). This led to a loss of consciousness - a state commonly referred to as 'G-hole' (3). Some participants witnessed friends being hospitalized or die because of the complications of severe drug overdose, for example respiratory depression or choking whilst unconscious. Some drug overdose victims found themselves penetrated anally without their consent (3). Several participants reported severe nervous irritation following crystal methamphetamine use during intense chemsex sessions (3). The long-term health impact of drug use in chemsex has been observed as poor mental health, depression, anxiety and psychosis (3). The social impact of illicit drug use in chemsex has been reported to cause sexual self-centeredness, inconsiderate behavior towards sexual partners resulting in damaged relationships (3). Poor concentration, the dampening of cognitive functions and the effects from withdrawal (3) also affected the users' ability to function effectively in the workplace.

Mental health: Though it was difficult for gay adolescents to identify and articulate their sexuality, some were aware that they were different (15,16). As they grew older, these adolescents developed a vocabulary and an ability to communicate their sexual differences which rendered them vulnerable psychologically (15). In these studies, the lack of a father-son relationship during childhood was notable and the lack of a supportive role model appears to have had an impact upon the child's emotional development (15,16). They likened being gay to being socially unaccepted, excluded and condemned - which increased as they advanced in age, ultimately culminating into a sense of self-alienation. It seems that the need to fit into the social norm and be accepted was much stronger than their emerging sexuality. This internal conflict engen-

dered internalized homophobia (15). At times, the internal conflict became extremely intense - to a point where their defense mechanisms were insufficient to deal with the internal stress. The only option for them was to destroy the 'bad part within' by self-harm or suicide (15).

The role of the internet and exposure to risk: With the presence of Internet-Based Communication (IBC), gay men could meet other gay men online and extend their sexual practices (6,7). The e-dating websites offered e-daters options to describe themselves, their sexual preferences, the type of partners they desired and their HIV status (7). In this way, website users could use filters to choose who to communicate with depending on personal profiles and preferences (6,7). When comparing face-to-face and internet-based communications, e-daters asserted that e-dating made it easier for the users to deal with social rejection (6,7). However, e-dating lacked non-verbal communication and sometimes messages could be ambiguous and open to misinterpretation (6). For the communication to be meaningful, participants suggested a combination of both methods - face to face and e-dating - in their interactions (6).

These two methods of interaction were used differently when looking for certain types of sex. For instance, IBC was used by some gay men when seeking instant casual UAI, whereas a face-to-face approach was used to seek serious sexual partners (6). Through filtering, participants were able to reduce the risk of rejection related to their HIV positive status (7). E-daters used different cues to discern and manage HIV related risks, for instance they used indirect ways to communicate their HIV status online such as explicit images of unsafe sex (7). This helped other e-daters to filter the type of partner they wished to meet. Some HIV infected e-daters opted to have UAI with other HIV positive partners to minimize the chances of rejection and blame often associated with HIV discrimination (7). In certain instances, IBC was reported to be discriminatory with HIV related prejudices.

Sexual risks among gay men: With regards to sero-sorting - a practice among HIV positive men choosing to use or not to use condoms based on their belief about their own and their partner's HIV status - most HIV positive men deliberately decided to engage in chemsex without using condoms if their partners were HIV positive (4). Some gay men were keen to establish HIV sero-concordancy by direct disclosure online or face-to-face, before engaging in sex, whereas others depended on assumptions or cues such as their partner's appearance, tattoos or piercings (4,8). Hence, those who looked 'clean', fit, young and less involved in the gay scene were regarded as less risky (8).

Apart from HIV, some participants were less concerned about other Sexually Transmitted Infections (STI's) (4,8). For those who were concerned about STIs, this did not translate into taking preventive action as might be expected. For example,

most of the gay men did not use protection (latex gloves) while fisting (ano-brachial intercourse) (4). In high-risk situations, for instance sex with multiple partners of unknown HIV status or UAI in a sero-discordant relationship, the risk of HIV was considered low when UAI was insertive, infrequent, brief, thoroughly lubricated, or gentle (8). To some gay men, HIV transmission was associated with promiscuous lifestyles and as a result, those who practiced UAI with few partners, or with non-drug users, or those who were not on the gay scene, saw themselves at low risk of acquiring HIV (8).

To some gay men, condoms were considered a barrier to intimacy with established long-term partners and an impediment to progressing from a casual to a more intimate and serious relationship (8). The correct use of condoms was considered as an interruption to sexual enjoyment, a barrier to adventurousness, sexual pleasure, experimentation and spontaneity (8). The narratives of some gay men included several accounts of losing control of sexual encounters which led to rape, or a failure to recognize whether UAI had happened or not (8). Poor mental health due to any cause such as a bereavement, relationship breakdown or unemployment was associated with heightened sexual risk-taking amongst gay men (8). When gay men engaged in UAI received HIV negative results they developed a sense of immunity and confidence, resulting in the belief that UAI did not pose any great risk in relation to acquiring HIV (8).

Summary of the findings from reviewed studies: In summary, the quantitative studies reviewed found a high risk of self-harm, poor mental health, high-risk sexual practices and substance use among gay men in the UK. The qualitative studies reviewed revealed that some gay men face challenges associated with their sexual identity in the early years of adolescence and the situation is worsened by an unsupportive environment both inside and outside the home. In addition, the use of illicit drugs increased risks to their health especially when the drugs were taken before or during sex (chemsex). Furthermore, internet use was found to facilitate high risk sexual behavior and/or expose gay men to homophobic discrimination and/or hate crimes.

Discussion

It is evident from this review that gay men in the UK are likely to experience poor mental health and that this experience starts early on in life - persisting into adulthood. As young as six years old, children with a different sexual orientation can be exposed to hostile and unsupportive environments - both at home and in the community - creating significant psychological stress, resulting in poor mental health [3,30]. Psychological stress also results from the hostility experienced in the health care system and studies by Guasp et al., [4] show that gay men in the UK are dissatisfied with the level of compassion, openness and confidentiality of health care providers. These experiences may explain why some gay men develop

negative self-attitudes - described in the literature as 'internalised homophobia' Meyer 1995, Williamson 2000 - a situation that then makes it doubly difficult for gay men to be open to service providers about their sexuality and specific healthcare needs [8,31]. Providers who display heterosexual bias sometimes explicitly discriminate against gay men, showing a lack of sensitivity and attention to the issues of the gay community [32]. Gay people generally are considered a 'hidden minority' group which is invisible to mental health services [33]. This invisibility is attributed to an intricate web of negative societal attitudes, stigma, fear and a lack of trust between the gay community and health professionals which is exacerbated by the lack of awareness and knowledge about service delivery to this particular group [34]. This kind of treatment from health care providers is antithetical to the legal mandate within the health-care system of equity [35].

The review also indicated that substance use is a significant problem among gay men in the UK. This is reflected in other developed countries like the US, Canada and Australia [36]. For example, a study done in the US revealed that the prevalence of substance use was twice as high among young LGB people as compared to their heterosexual peers [37]. Gay men who use drugs often use multiple drugs during sexual activities - 'chemsex'. This practice is associated with the sexual disinhibiting and enhancement effects of drugs [38]. This concurs with Guss' [39] hypothesis that gay men are more likely to opt for the short-term effect of drugs which suppress the negative thoughts of rejection and fear which have been heightened by internalized homophobia and shame. One of the effects of taking drugs - hyper-sexuality for example, may lead to sex marathons, group sex and rectal trauma - which suggests an elevated risk of STD transmission [40]. However, the relationship between drug use and increased sexual health risk is complex and has been challenged (Ibid). Findings from this review suggest that the real risks for gay men lie not with their social practices per se, but in the everyday hetero-normative environment in which they regularly face hostility, discrimination, rejection and shame. Given this level of everyday psychological stress it is hardly surprising that gay men engage in high risk activities involving drugs, alcohol and sex to cope with acutely stressful periods brought on by abuse, bereavement, unemployment or the break-up of a significant relationship [39].

From the reviewed studies, the social exclusion of gay men compels them to socialize in gay-friendly environments such as clubs and bars. These environments offer gay men a place of acceptance and free self-expression, however, they can also be a place of risk, providing easy access to drugs and alcohol which increases the level of vulnerability [41]. Measham et al., [42] provide a good illustration of this, showing gay men in London to be the 'early adopters' of illicit drugs compared to the rest of the population, and that this can be attributed to the accessibility of drugs available at venues with an established gay scene.

Sexual risk seems to be heightened by an incorrect perception about safe sex, and a deliberate engagement in bare-backing by some gay men. Some gay men hold incorrect perceptions about safe sex which make them trade-off between intimacy and sexual risk. This supports earlier research by Golub et al., [43] who found that gay men in New York commonly reported condom use as a barrier to intimacy. In addition, some gay men do not consider STIs - other than HIV - as dangerous since they are treatable. Certain sexual practices such as UAI which, if lubricated, done gently, infrequently and insertive, is considered less risky. There are also misconceptions because of a reliance upon visual cues that gay men use to discern 'risky' partners. These factors combined put gay men at an increased sexual health risk - as has been highlighted by Flowers et al., [44]. Despite knowing these risks, some HIV positive gay men deliberately engage in risky sexual behaviors. This corroborates recent health promotion literature which suggests that people often do know the risks and indeed know how to protect their health, but deliberately decide not to [45]. This warrants further investigation.

As suggested by the findings, the internet provides a space for gay men to meet virtually and extend their sexual interactions. However, IBC can be a source of discrimination and an avenue for unsafe sexual practices similarly to what Chiu and Young [46] found in their studies. Since it is hard to control who visits gay- friendly sites, men with a variety of motives may use them with the intention of 'trying out' gay sex, engaging in high risk sexual practices, or even to abuse gay men by expressing homophobic attitudes or by committing hate crimes. Instead of being a virtual safe place for gay men, IBC may well expose them to more, not less risks [9].

Emerging from the findings of this review is a narrative of risk and vulnerability that cannot be adequately understood from a purely behavioral perspective with its narrow focus on drug taking and sexual practices. It is clear that contextual factors play a significant role, both in shaping identity and social practices. For gay men, some of these practices define who they are and give them a sense of a belonging, providing what might be considered as a set of alternative coping strategies for a community facing hostility and discrimination in the wider hetero-normative environment. It is unsurprising therefore, that gay men might seek safe spaces away from homophobic attitudes and discrimination [47], but it is precisely here in these spaces that safety is being compromised by providing opportunities that can heighten risks to health. The development of the world-wide-web has extended such risks, making activities that were once negotiated face-to-face more widely and easily accessible via virtual platforms that could carry an added element of danger from users with malicious intent.

Limitations

Most of the findings of both quantitative and qualitative studies could not be generalized because the majority of the stud-

ies used convenience samples which made it difficult to infer findings to a wider population [48]. Additionally, most studies reviewed were conducted in London - a capitol city which differs in many ways to the provincial cities and towns in the rest of the UK. Despite these limitations, the findings of this review are relevant and potentially of use to those practitioners responsible for designing health promotion interventions in gay-friendly social venues, health care facilities or gyms in cities with LGBT communities comparable to London. Another limitation of this review is that it was undertaken by a single researcher with the attendant potential to miss studies, or to make errors in the selection process. However, this was mitigated by the use of a comprehensive and systematic search strategy on a wide range of relevant sources. Notwithstanding the aforementioned limitations, the review does offer some interesting findings which do make a useful contribution to understanding how sexual identity impacts on the health of gay men in the UK.

Recommendations

It is clear from this review that 'people live their lives inextricably bound up with the environment in which they live' (WHO, 1986, p.3) and gay men are no exception. Crucially, the Ottawa Charter highlights that the prerequisites for health are peace, social justice and equity (ibid) and it is also clear that a hetero-normative environment does not currently provide this for gay men in the UK [49]. If we are to improve the health outcomes for gay men, there must be a shift away from the focus on behaviors to look more fundamentally at the root causes of risks to health. Consequently, we must look to create supportive environments where gay men can access information, develop life skills and have an opportunity to make healthy choices without having to compromise their sexual identity in the process. This cannot be achieved by one professional group alone, but by working across professional disciplines collaboratively and with government and other stakeholders to develop relevant, equitable policies and supportive environments for all that are inclusive of gay men and their healthcare needs.

Health promotion and public health practitioners are well positioned to do this work and to advocate for services and support systems that address gay men's health risks based on the unique social context of their lived experiences. Using advocacy to effect change, practitioners could concentrate efforts to work with gay men, activists and other professionals to mediate between differing interests in the community for the pursuit of better health outcomes for gay men. In this way a more salutogenic approach to health is promoted, an approach which emphasizes the much needed elements of being part a community, feeling loved, safe, and free from violence [45].

Conclusion

In conclusion, findings from the reviewed studies reveal that

gay men have increased levels of stress which predispose them to substance use and poor health outcomes in general. Chemsex increases the likelihood of users to practice risky sexual behaviors like UAI and sex with multiple partners of unknown HIV status. Increased stress and internal conflict caused by social rejection and living in hetero-normative environments heighten the likelihood of self-harm, suicide and engagement in high risk behaviors for gay men. There is still an incorrect perception about high-risk sexual behaviors among gay men in the UK and IBC can be an environment that fosters risky sexual practices.

This review highlights several gaps in the literature including a general lack of evidence about the wider health risks associated with being a gay man in the UK. Moreover, there are weaknesses in the sampling methods used in most of the available studies and it is therefore recommended that high quality studies using more robust sampling techniques like randomization, clustering or combined sampling methods should be undertaken in order to better understand the extent of health risks among gay men in the UK. Since most of the studies were conducted in London, it is also important for future studies to explore risk behaviors among gay men in other parts of the UK and indeed in other international contexts so that policy and practice can be better informed by a wider evidence base. An overall weakness found in most studies involving gay men was the poor and inconsistent definition of study participants which caused many studies to be rejected in this review. It is recommended that a clear definition of gay men be used for future research endeavors.

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Appendix 1: The search terms.

Study participants	Exposure	Outcome		Study location
		General	Specific	
Gay m?n Homosexual m?n Queer LGB*	Identit* Self-concept Sexual orientation	Risk Risk behav* Harm* behav*	Alcoho* Binge drink* Alcohol abuse	UK United Kingdom Britain England Scotland Northern Ireland Wales British London
			Condom-less sex Unsafe sex Bareback* Unprotected anal intercourse UAI Buggery	
			Suicid* Self-harm*	
			Illegal drug* Illicit drug* Substance abuse Recreation- al drug* Legal high* Chemsex Methamphetamine	

Note: ? and * are wildcard and truncation symbols respectively.